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# ANNALS

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1. MATERIAL should be original and not published elsewhere, in whole or in part.

2. LAYOUT should be as follows:

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 Title: informative but concise, without abbreviations and not including the names of new genera or species  
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 FISCHER, P.-H. 1948. Données sur la résistance et de la vitalité des mollusques. *J. Conch.*, Paris 88: 100-140.  
 FISCHER, P.-H., DUVAL, M. & RAFFY, A. 1933. Études sur les échanges respiratoires des littorines. *Archs Zool. exp. gén.* 74: 627-634.  
 KOHN, A. J. 1960a. Ecological notes on *Conus* (Mollusca: Gastropoda) in the Trincomalee region of Ceylon. *Ann. Mag. nat. Hist.* (13) 2: 309-320.  
 KOHN, A. J. 1960b. Spawning behaviour, egg masses and larval development in *Conus* from the Indian Ocean. *Bull. Bingham oceanogr. Coll.* 17 (4): 1-51.  
 THIELE, J. 1910. Mollusca: B. Polyplacophora, Gastropoda marina, Bivalvia. In: SCHULTZE, L. *Zoologische und anthropologische Ergebnisse einer Forschungsreise im westlichen und zentralen Süd-Afrika* 4: 269-270. Jena: Fischer. *Denkschr. med.-naturw. Ges. Jena* 16: 269-270.

(continued inside back cover)

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A NEW GENUS AND SPECIES OF  
THE PENAEOID FAMILY  
SOLENO CERIDAE (CRUSTACEA, DECAPODA) FROM  
SOUTH-EAST AFRICAN WATERS

By

ANTÓNIO J. DE FREITAS

Cape Town      Kaapstad

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A NEW GENUS AND SPECIES OF THE PENAEOID FAMILY  
SOLENOCERIDAE (CRUSTACEA, DECAPODA) FROM  
SOUTH-EAST AFRICAN WATERS

By

ANTÓNIO J. DE FREITAS

*Oceanographic Research Institute, Durban*

(With 1 figure and 1 table)

[MS accepted 31 October 1978]

ABSTRACT

A new genus, *Cryptopenaeus*, is proposed for a new solenocerid species, *Cryptopenaeus catherinae*, which is described and illustrated. The new genus is related to *Hymenopenaeus* and *Haliporoides* formerly belonging to the genus *Hymenopenaeus*, *sensu lato*. *C. catherinae* has so far been found only in three localities off southern Mozambique at depths of 310–500 metres.

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INTRODUCTION

In June 1969, while collecting penaeoid shrimps aboard a trawler operating in deep water off southern Mozambique, one male specimen representing a new genus and species was caught in 350 metres of water. Further male specimens were subsequently found in the same area in June 1973, and the only female available was caught in September 1976 at a depth of 500 metres.

All specimens were caught together with the commercially important pink or knife prawn *Haliporoides triarthrus*, as well as the less common *Aristeomorpha foliacea* and *Penaeopsis balssi*.

Genus *Cryptopenaeus* gen. nov.

*Diagnosis*

Body robust; carapace elongate; integument firm. Rostrum short, not reaching distal margin of first antennular segment; ventral margin moderately convex; armed only with dorsal teeth; epigastric tooth and first rostral separated by interval equal to or only slightly greater than that between first and second rostral teeth. Orbital, suprahepatic and branchiostegal spines absent; antennal, postorbital, hepatic and pterygostomial spines present; cervical sulcus deep, long but not reaching mid-dorsum of carapace; hepatic sulcus deep and long, bending anteroventrally from horizontal posterior part and almost reaching

base of pterygostomian spine; orbito-antennal groove shallow and wide; branchiocardiac carina distinct but not sharp; mid-dorsal abdominal carina present on segments two to six. Telson with pair of short fixed spines; no movable marginal spines. Prosartema narrow, long, extending beyond end of eye. Antennular flagella similar, subcylindrical and equal to, or slightly longer than, carapace. Mandibular palp two jointed; articles subequal in length, distal one narrower than basal and tapering to rounded apex. Exopodites on all maxillipeds and pereopods. Lateral ramus of uropod with very small, blunt distolateral spine. Petasma with ventrolateral lobule entirely occupied by ventral costa and distally free from dorsolateral lobule; both ventrolateral and dorsolateral lobules heavily sclerotized; appendix masculina and appendix interna present. Thelycum simple, of open type. Podobranch on maxilliped II only; epipodites on maxillipeds II and III and on pereopods I–IV.

#### *Type species*

*Cryptopenaeus catherinae* sp. nov.

#### *Etymology*

The generic name is derived from the prefix *crypto*, from the Greek *kryptos* meaning hidden, in combination with the generic name *Penaeus*, denoting the fact that this shrimp has been hidden from science until now; gender masculine.

#### *Taxonomic status and comments*

From the works of Bate (1881, 1888), Bouvier (1906), and Burkenroad (1936), it is clear that the generic complex forming the then accepted subfamily Solenocerinae presented many taxonomic difficulties. This subfamily consisted of three genera: *Solenocera*, shrimps with concave antennular flagella (Lucas 1849; Wood-Mason & Alcock 1891; Barnard 1950); *Haliporus*, shrimps with subcylindrical antennular flagella and movable lateral spines on the telson anterior to fixed pair (Bate 1881; Kensley 1968); and *Hymenopenaeus*, shrimps with subcylindrical antennular flagella and lacking lateral spines on the telson (Smith 1882; Wood-Mason & Alcock 1891; Barnard 1950).

It is apparent from the literature, however, that Burkenroad (1936) was somewhat unhappy with the taxonomic status of *Hymenopenaeus* and went to the point of dividing the genus into four superspecies '... according to the presence or absence of branchiostegal or pterygostomian spines and to the nature of the postrostral armature'. Pérez Farfante (1977) revised the subfamily and, besides proposing that the subfamilies hitherto accepted should be elevated to the category of families of the superfamily Penaeoidea, divided *Hymenopenaeus* into five genera partly based on the superspecific groups elaborated by Burkenroad (1936). In doing so Pérez Farfante takes into consideration the '... shape of the antennular flagella and rostrum, proportions of the carapace, number and comparative size of the articles of the mandibular palp, presence or absence of certain carinae on the carapace, relative dimensions of the posterior

two pairs of pereopods, location of the distolateral spine of the lateral ramus of the uropod, structure of the petasma and degree of development of the arthrobranchia on somite VII', as well as those characteristics originally used by Burkenroad.

The system presented is very comprehensive and covers the previously known species extremely well. However, whereas the six specimens caught in southern Mozambique belong clearly to the family Solenoceridae and would have fitted into the genus *Hymenopenaeus sensu lato*, they do not belong to any of the five genera established by Pérez Farfante (1977), and have therefore been placed in a new genus, *Cryptopenaeus*.

Table 1 sets out the similarities and differences between *Cryptopenaeus* and the other five genera, *Hymenopenaeus*, *Haliporoides*, *Pleoticus*, *Hadropenaeus*, and *Mesopenaeus*. The new genus is closely allied to *Hymenopenaeus* and *Haliporoides* but differs from the former in the arrangement of the rostral teeth, the absence of branchiostegal spines, the presence of a mid-dorsal carina on abdominal segments 2 and 3 and also by the short rostrum with a strongly convex ventral margin. *Cryptopenaeus* differs from *Haliporoides* in the arrangement of the rostral teeth, presence of a dorsal carina on the second abdominal segment, by the absence of a suprahepatic spine and by the short rostrum with a strongly convex ventral margin. The petasma of *Cryptopenaeus* differs from that of the other five genera in having the ventrolateral lobule entirely occupied by the ventral costa.

*Cryptopenaeus catherinae* sp. nov.

Fig. 1

*Material*

Holotype: SAM-A16148 in the South African Museum, Cape Town, ♂, 46,7 mm carapace length, caught off Cape Santa Maria in southern Mozambique (26°06'S 33°08'E) at a depth of 350 metres, on 16 December 1969.

Allotype: SAM-A16149 in the South African Museum, Cape Town, ♀, 63,2 mm carapace length, caught off Monte Bello in southern Mozambique (25°00'S 35°21'E) at a depth of 500 metres, in September 1976.

Paratypes: 4 ♂♂, 44,5–47,7 mm carapace length, caught off southern Mozambique at a depth of 310 metres, in June 1973. One male paratype is in the National Museum of Natural History in Washington, D.C., and the remaining three will be sent to the British Museum (Natural History).

*Description*

*Rostrum.* Slightly downwardly directed, reaching to or just beyond end of first antennular segment; ventral margin convex; rostral teeth  $\frac{7-8}{0}$ ; epigastric and three other teeth situated behind postorbital margin of carapace; adrostral carina short, just reaching postorbital margin; postrostral carina very well developed, long, almost reaching posterior margin of carapace and with conspicuous notch behind epigastric tooth; median groove absent.

TABLE I  
Characteristics distinguishing *Cryptopenaeus* gen. nov. from the five closely related genera

	<i>Hymenopenaeus</i>	<i>Haliporoides</i>	<i>Pleoticus</i>	<i>Hadropenaeus</i>	<i>Mesopenaeus</i>	<i>Cryptopenaeus</i>
Epigastric and rostral teeth ..	Epigastric and 1st rostral teeth separated from 2nd	Epigastric separated from 1st rostral tooth	Separated by regularly decreasing intervals	Separated by regularly decreasing intervals	Separated by regularly decreasing intervals	Separated by regularly decreasing intervals
Abdominal dorsal carina ..	4-6	3-6	1-6 or 3-6	3-6	3-6	2-6
Branchiostegal spine ..	Present	Absent	Present or absent	Present	Absent	Absent
Pterygostomian spine ..	Present or absent	Present	Absent	Absent	Absent	Present
Orbital spine ..	Absent	Absent	Present	Absent	Present	Absent
Suprahepatic spine ..	Absent	Present	Absent	Absent	Absent	Absent
Branchiocardiac carina ..	Present	Present	Absent	Absent	Absent	Present
Submarginal carina ..	Present	Present	Present	Absent	Absent	Present
Ventral margin of rostrum ..	Straight	Long, straight to concave	Straight to concave	Strongly convex	Strongly convex	Short and convex

















